

AMENDMENT

Amendments to the Specification:

Following the abstract, please insert the enclosed Substitute Sheets as replacement pages 1 through 8 of the Sequence Listing submitted previously for the above-referenced patent application.

Please replace paragraph [0022] with the following amended paragraph:

[0022] FIG. 13 shows the individual oligonucleotide components of the nano-barcode of FIG. 12. Note that, as shown in FIG. 12, there are 9 fragments (labeled PT1 to PT9, in order), which correspond to the underlined segments of sequences represented in FIG. 14 (SEQ ID NOS:3 to 11) used to make the top strand of the nano-barcode and 4 fragments (labeled #1 to #4) used to make the bottom strand (SEQ ID NOS:12 to 15). PT1 corresponds to residue numbers 1-30 of SEQ ID NO:3. PT2 corresponds to residue numbers 11-40 of SEQ ID NO:4. PT3 corresponds to residue numbers 21-60 of SEQ ID NO:5. PT4 corresponds to residue numbers 11-40 of SEQ ID NO:6. PT5 corresponds to residue numbers 21-60 of SEQ ID NO:7. PT6 corresponds to residue numbers 11-40 of SEQ ID NO:8. PT7 corresponds to residue numbers 21-60 of SEQ ID NO:9. PT8 corresponds to residue numbers 11-40 of SEQ ID NO:10. PT9 corresponds to residue numbers 22-61 of SEQ ID NO:11. The 9 fragments (labeled PT1 to PT9) The hybridized nano-barcode exhibits branch points detectable by scanning probe microscopy.

Please replace Table 3 with the following amended Table 3:

In re Application of:

Chan, et al.

Application No.: 10/667,004

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Page 3

PATENT
ATTY. DOCKET NO.: INTEL1310-1(P14240X)

Table 3: Exemplary Subunits for Polymer Decoration

Tag Element	Mono-functionalized	Attachment to Polymer Subunit	Polymer Sequence
C60	C60COOH	Lysine	NH ₂ -(Gly-Gly-Gly-Lys) ₈ -COOH (<u>SEQ ID NO:16</u>)
C60	C60COOH	Lysine	NH ₂ -(A-A-A-A-A-A-K)[[7]] ₂ -COOH (<u>SEQ ID NO:17</u>)
C70	C70COOH	Lysine	NH ₂ -(Gly-Gly-Gly-Lys) ₈ -COOH (<u>SEQ ID NO:16</u>)
C70	C70COOH	Lysine	NH ₂ -(A-A-A-A-A-A-K) ₇ -COOH (<u>SEQ ID NO:17</u>)
La Buckey	LA Bucky COOH	Lysine	NH ₂ -(Gly-Gly-Gly-Lys) ₈ -COOH (<u>SEQ ID NO:16</u>)
La Buckey	LA Bucky COOH	Lysine	NH ₂ -(A-A-A-A-A-A-K) ₇ -COOH (<u>SEQ ID NO:17</u>)
C60	C60COOH	Ethyl amino Thymidine (X)	5'-(T-X)10-3'
C60	C60COOH	Ethyl amino Thymidine (X)	5'-(X-Q) where Q is 12 atom spacer
C70	C70COOH	Ethyl amino Thymidine (X)	5'-(T-X)10-3'
C70	C70COOH	Ethyl amino Thymidine (X)	5'-(X-Q) where Q is 12 atom spacer
La Buckey	LA Bucky COOH	Ethyl amino Thymidine (X)	5'-(T-X)10-3'
La Buckey	LA Bucky COOH	Ethyl amino Thymidine (X)	5'-(X-Q) where Q is 12 atom spacer
(NH ₂) ₈ POSS	NA	Glutamic or aspartic acid	NH ₂ -(Gly-Gly-Gly-Glu) ₈ -COOH (<u>SEQ ID NO:18</u>)
(NH ₂) ₈ POSS	NA	Glutamic or aspartic acid	NH ₂ -(A-A-A-A-A-E) ₇ -COOH (<u>SEQ ID NO:19</u>)
(NH ₂) ₈ POSS	NA	T carboxylate analog (Y)	5'-(T-Y)10-3'
Metal Phalocyanine	COOH	Lysine	NH ₂ -(A-A-A-A-A-A-K) ₇ -COOH (<u>SEQ ID NO:17</u>)
Metal Phalocyanine	COOH	Lysine	NH ₂ -(Gly-Gly-Gly-Lys) ₈ -COOH (<u>SEQ ID NO:16</u>)

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Page 4

PATENT

ATTY. DOCKET NO.: INTEL1310-1(P14240X)

Please replace Table 4 with the following amended Table 4:

Table 4. Exemplary Subunits for Direct Polymer Imaging

Subunit	Polymer
Lysine (K)	(A ₆ -K) ₈ or (AAKAAA) ₄ or KKKKKKKK (<u>SEQ ID NOS: 20-22</u>)
Glutamic acid (E)	(A ₆ -E) ₈ or (AAEAAA) ₄ or EEEEEEE (<u>SEQ ID NOS: 23-25</u>)
E and K	(AAKAAA) ₄ (<u>SEQ ID NO:26</u>)
Br-T (Br)	T-Br-T-Br-TTT-Br-TTT-Br-Br-T
NH ₂ -T (N)	T-N-T-N-TTT-N-TTT-N-N-T
Br and N	T-Br-T-N-T-Br-Br-TTT-N-N-Br-T
Phosphate and spacers	TTT-3-9-3-3-9-9-3-9